

WHAT IS CLAIMED IS:

1. A primary alkaline battery comprising a metal elongated housing, a positive and a negative terminal, and a plurality of individual alkaline cells; wherein said alkaline cells are encased in a hydrogen permeable casing and are electrically connected in parallel to said positive and negative terminals; wherein said cells and said casing are housed within the interior of said metal elongated housing.

2. The alkaline cell of claim 1 wherein said hydrogen permeable casing comprises plastic.

3. The alkaline battery of claim 1 wherein each cell comprises an anode comprising zinc, a cathode comprising manganese dioxide, a separator therebetween and electrolyte comprising aqueous potassium hydroxide.

4. The alkaline battery of claim 1 wherein each of said cells is in the shape of a cuboid.

5. The alkaline battery of claim 1 wherein said metal elongated housing is the shape of a cuboid.

6. An alkaline battery comprising a plurality of individual alkaline cells, said battery comprising a metal elongated housing having a major portion of its surface substantially flat; wherein said alkaline cells are contained within the interior of said metal elongated housing; wherein each of said cells comprises an anode slab, a cathode slab and separator therebetween; said anode and cathode stacked in body to body arrangement with said separator therebetween; wherein each of said cells has a pair of opposing major outer surfaces, at least one of which is polygonal; wherein one of said opposing major outer surfaces forms a portion

of the anode and the other forms a portion of the cathode; wherein a peripheral edge surface of each of said cells lies between said pair of opposing major outer surfaces; wherein the distance between said pair of opposing major outer surfaces of each of said cells defines the thickness of each of said cells, respectively; and wherein said cells are encased in a casing and aligned therein so that a portion of the peripheral edge surface of one cell is adjacent a portion of the peripheral edge surface of the next cell to form a pack of cells; wherein said pack of cells and said casing are housed within the interior of said metal elongated housing.

7. The alkaline battery of claim 6 wherein said peripheral edge surface of each cell runs between the cell thickness.

8. The alkaline battery of claim 6 wherein said cells are about the same shape and size and the cells are aligned so that the thickness of the pack of cells is about the same as the thickness of each cell.

9. The alkaline battery of claim 6 wherein said cells are encased in a common plastic casing, said plastic casing being permeable to hydrogen.

10. The alkaline battery of claim 9 wherein there are ribs within said plastic casing separating said peripheral edge surfaces of aligned adjacent cells.

11. The alkaline battery of claim 6 wherein each cell comprises an anode comprising zinc and a cathode comprising manganese dioxide.

12. The alkaline battery of claim 6 wherein the cells are electrically connected in parallel.

13. The alkaline battery of claim 6 wherein the metal elongated housing has a polyhedron shape.

14. The alkaline battery of claim 13 wherein each of said cells has a polyhedron shape.

15. The alkaline battery of claim 6 wherein the metal housing comprises an elongated body surface and two opposing end surfaces; wherein a major portion of said body surface has a flat polygonal shape.

16. The alkaline battery of claim 6 wherein the metal housing comprises an elongated body surface and two opposing end surface; wherein said metal housing has a cuboid shape.

17. The alkaline battery of claim 6 wherein said pair of opposing major surfaces of each of said cells has a flat polygon shape.

18. The alkaline battery of claim 6 wherein said pair of opposing major surfaces of each of each of said cells has a flat rectangular shape.

19. The alkaline battery of claim 6 wherein each of said cells has a cuboid shape.

20. The alkaline battery of claim 19 wherein the anode and cathode in each of said cells has a cuboid shape.

21. The alkaline battery of claim 9 wherein the number of cells contained within said common plastic casing is between 3 and 5.

22. The alkaline battery of claim 6 wherein the volume of the anode and cathode material within the total number of cells within

said metal elongated housing is between about 50 and 75 percent of the external volume of said metal elongated housing.

23. The alkaline battery of claim 16 wherein the overall dimensions of the battery are 6 mm thickness; 17 mm width; and 67 mm length.

24. The alkaline battery of claim 6 wherein the metal elongated housing comprises two sections wherein one is applied to cover the top of said casing along the length of said casing and the second is applied to cover the bottom of said casing along the length of said casing and the edges of the two sections are sealed to each other so that said casing is encased within said metal housing.

25. The alkaline battery of claim 6 wherein the metal elongated housing comprises a sheet of metal which is wrapped around said casing.

26. The alkaline battery of claim 6 wherein the metal material forming the housing is selected from the group consisting of nickel plated cold rolled steel and stainless steel.

27. The alkaline battery of claim 9 wherein said plastic casing is permeable to hydrogen and selected from the group consisting of porous polyethylene, porous polypropylene, nylon and polysulfone.

28. The alkaline battery of claim 6 wherein said battery is a primary nonrechargeable battery.

29. An alkaline battery comprising only one alkaline cell, said battery comprising an metal elongated housing having a major portion of its surface flat; wherein said alkaline cell is

contained within the interior of said metal housing; wherein said cell comprises an anode slab, a cathode slab, and separator therebetween; said anode and cathode stacked in body to body arrangement with said separator therebetween; wherein said cell has a pair of opposing major outer surfaces, at least one of said major outer surfaces being polygonal; wherein one of said opposing major surfaces forms a portion of the anode and the other forms a portion of the cathode; wherein a peripheral edge surface of said cell lies between said pair of opposing major outer surfaces; wherein said cell is encased in a casing; and wherein said cell and said casing are housed within the interior of said metal elongated housing.

30. The alkaline battery of claim 29 wherein said casing is a plastic casing permeable to hydrogen.

31. The alkaline battery of claim 29 wherein the anode comprises zinc and the cathode comprises manganese dioxide.

32. The alkaline battery of claim 29 further comprising a negative terminal at one end of said metal housing in electrical contact with said metal housing and said anode; and a positive terminal at an opposing end of said housing, wherein said positive terminal is insulated from said metal housing and the cathode is in electrical contact with said positive terminal.

33. The alkaline battery of claim 29 wherein the metal housing has a polyhedron shape.

34. The alkaline battery of claim 29 wherein said cell has a polyhedron shape.

35. The alkaline battery of claim 29 wherein the metal housing comprises an elongated body surface and two opposing ends;

wherein a major portion of said body surface has a flat polygonal shape.

36. The alkaline battery of claim 29 wherein said pair of opposing major outer surfaces of said cell has a flat polygonal shape.

37. The alkaline battery of claim 29 wherein said pair of opposing major outer surfaces of said cell has a flat rectangular shape.

38. The alkaline battery of claim 29 wherein the metal housing comprises an elongated body surface and two opposing ends; wherein said metal housing has a cuboid shape.

39. The alkaline battery of claim 38 wherein said cell has a cuboid shape.

40. The alkaline battery of claim 39 wherein the anode and cathode of said cell each has a cuboid shape.

41. The alkaline battery of claim 29 wherein the volume of the anode and cathode is between about 50 and 75 percent of the external volume of said metal housing.

42. The alkaline battery of claim 38 wherein the overall dimensions of the battery are 6 mm thickness; 17 mm width; and 67 mm length.

43. The alkaline battery of claim 29 wherein the metal forming said housing is selected from the group consisting of nickel plated cold rolled steel and stainless steel.

44. The alkaline battery of claim 29 wherein said casing is permeable to hydrogen and comprises a plastic selected from the

group consisting of porous polyethylene, porous polypropylene, nylon and polysulfone.

45. The alkaline battery of claim 29 wherein said battery is a primary nonrechargeable battery.